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REMARKS

Claims 28 to 33, 35 to 38 and 41 to 49 are pending. Claims 41 to 43 are allowed and claims 36 and 37 are objected to. Claims 48 and 49 are new. Claim 29 is canceled.

1. Claims 28 to 33, 35, 38, 44, 45 and 47 are rejected under 35 USC 103(a) as being unpatentable over Elmquist et al. (U.S. Patent No. 4,602,637) in view of Baker, Jr. (U.S. Patent No. 4,679,572), or alternatively, as unpatentable over Elmquist et al. in view of Johansson et al. (U.S. Patent No. 5,427,631), and further in view of Baker, Jr. The Elmquist et al. and Baker, Jr. et al. patents have previously been discussed in the amendment filed May 16, 2003. However, independent claims 28 and 44 have been amended to set forth that the substrate is etched in an inert atmosphere prior to being contacted with a first layer consisting of at least one of the metals selected from titanium, vanadium zirconium, niobium, molybdenum, hafnium, tantalum, and tungsten. More specifically, independent claim 44 calls for the substrate being etched by RF sputtering in an inert atmosphere. Claim 30, which depends from amended independent claim 28, also calls for the substrate being etched by RF sputtering.

None of the patents cited by the Examiner suggest, much less teach, etching the substrate prior to contacting it with a first and subsequent metals. As described by Johansson et al at column 5, lines 17 to 21, "impurities would easily reach with the reactive titanium or titanium alloy. A diffusion barrier would then be

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formed which would prevent a nitride layer from being formed." Therefore, it is thus recognized that it is important for an adherent bond between the substrate and the coating layers that the substrate be cleaned (see page 6, lines 5 to 11 of the specification) to remove impurities that may detract from coating strength. According to the Applicants' invention, it is further beneficial to etch the cleaned substrate to provide surface rugosity. The subsequently deposited layers are then able to intimately bond to the substrate.

Accordingly, the Applicants are of the opinion that the step of etching the substrate surface in an inert atmosphere prior to deposition of the coating layer is a patentable aspect of their invention that is neither taught by any one of the cited patents, nor obvious in light of their combined teachings. Claims 30 to 33, 35, 38, 45 and 47 are allowable as hinging from patentable base claims.

Reconsideration of this rejection is requested.

2. Claim 46 is rejected under 35 USC 103(a) as being unpatentable over Elmquist et al. in view of Baker, Jr., or alternatively, as unpatentable over Elmquist et al. in view of Johansson et al., and further in view of Baker, Jr. as applied to claims 28 to 33, 35, 38, 44, 45 and 47, and further in view of Moaddeb et al. (U.S. Patent No. 5,645,580). The teachings of the Moaddeb et al. patent are essentially as set forth by the Examiner. However, claim 46 depends from amended independent claim 44, which is believed to be in a patentable form. The teachings of Moaddeb et al. do not alter this status.

Reconsideration of this rejection is requested.

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3. The Applicants acknowledge the allowance of claims 41 to 43.

4. Claims 36 and 37 are objected to. The subject matter of claim 36 has been combined with that of previously amended claim 28 to form new claim 48. Similarly, the subject matter of claim 37 has been combined with that of previously amended claim 28 to form new claim 49. Allowance of new claim 48 and 49 is requested.

It is believed that claims 28, 30 to 33, 35 to 38 and 41 to 49 are now in condition for allowance. Notice of Allowance is requested.

Respectfully submitted,

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